

MOU No: FNA 08Effective Date: 7/2/99

MEMORANDUM OF UNDERSTANDING
BETWEEN
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AND
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
CONCERNING
AVIATION SAFETY RESEARCH

I. BACKGROUND

Traditionally, the Department of Transportation (DOT), Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) have worked together on activities to advance new technologies for enhancing the operating safety, efficiency, and environmental compatibility of the air transportation system.

The Agreement Between FAA and NASA, signed October 9, 1998, entitled: "A Partnership To Achieve Goals in Aviation and Future Space Transportation" obligates the FAA and NASA to pursue complementary goals in aviation and future space transportation, to coordinate planning efforts, and for senior management to monitor the collaborative activities necessary to accomplish these goals. Cooperative research, pursuant to this agreement, are outlined and documented as separate Memoranda of Understanding (MOU's) giving the rationale, objectives, and examples of the types of research to be performed. Memoranda of Agreement (MOA's) further delineate specific research activities to be undertaken cooperatively by the two agencies under a specific MOU.

This MOU describes the FAA/NASA cooperative research activities that will be conducted under the category of aviation safety. The collaboration outlined in this Aviation Safety MOU addresses a key recommendation by the White House Commission on Aviation Safety and Security in their final report of February 12, 1997.

II. RATIONALE

Commercial aviation has rapidly expanded and is projected to continue to do so into the foreseeable future. The rate of accidents in commercial aviation, even though extremely low, has remained nearly constant over the past quarter century. Anticipated airline growth, coupled with a constant accident rate, would result in a potential unacceptable increase in the number of aviation accidents occurring in the future. Reducing the already low accident rate will not be possible without the introduction of new technologies, procedures, and training methods. These new technologies will result in reduced fatalities and injuries, reduced aircraft losses, and will help create better aircraft designs and improved maintenance and inspection procedures. The FAA and NASA are collaborating with the aviation industry and academic research partners to develop technologies that will improve safety in an evolving, changing, and demanding aviation environment.

The FAA is responsible for establishing standards, advisory materials, and regulations that assure airworthiness of aircraft, aircraft systems, and flight crews; including both flight and ground operations in the National Airspace System (NAS). In support of this mission, the agency conducts a broad-based Research and Development (R&D) Program to develop and validate technologies, techniques, and procedures. This R&D program is focused primarily on products needed within the next 2-5 years. NASA has a research responsibility focused on long-range, high-risk, high-payoff aeronautical and space technologies. In support of this mission, NASA conducts fundamental and conceptual research and supports transfer of appropriate research products to the FAA and the aviation industry. The FAA and NASA R&D programs, combined, address both the present and future needs of the NAS.

III. OBJECTIVE

The objective of this MOU is to establish an understanding between FAA and NASA to achieve, through joint, cooperative R&D, a significant reduction in the fatal accident rate for all categories of aircraft over the next 25 years. This initiative will address both near-term and long-term requirements. The results of this initiative, when implemented, are anticipated to lead to an 80-percent reduction in the fatal accident rate by year 2007, as compared to the 1994 to 1996 baseline. Areas for cooperative or joint activities may include, but will not be limited to, the following:

- A. Accident and Incident Prevention - A primary goal of any safety program is to prevent accidents before they happen. This activity will address development and deployment of existing and new breakthrough technologies to eliminate accident precursors. Interventions to eliminate key accident categories will be identified and implemented. Areas of research to be included under accident and incident prevention and related objectives are as follows:

1. Structural Integrity

Reduce the likelihood of fatalities and injuries resulting from structural failures for all categories of both existing and new aircraft, including transport, commuter, rotorcraft, and general aviation.

2. Propulsion Systems

Reduce the number of accidents that result from aircraft propulsion and fuel system failures.

3. Atmospheric Hazards

Reduce the number of accidents and incidents that result from, or are related to, natural or aircraft-induced atmospheric hazards, including clear air turbulence, wake vortex, windshear, icing, lightning, volcanic ash clouds, and weather requirements in the cockpit.

4. Mechanical and Electrical System Reliability and Integrity

Reduce the potential impact of hazards, both natural and humanmade, on advanced technology airframes and the emerging, highly complex, software-based digital flight control and avionics systems, and develop new systems to eliminate accident categories in existing and future aircraft fleets.

5. Human Error

Reduce the number of accidents and incidents attributed to human error by flight crews, air traffic controllers, airline dispatchers, maintenance, and inspection personnel.

B. Accident and Incident Mitigation - Preventative measures cannot avert all accidents and incidents. This activity will address means to increase protection for both passengers and crew if an accident occurs. New designs and technologies incorporating a systems approach to safety will be the emphasis of this activity. Areas of research to be included under accident and incident mitigation and related objectives are as follows:

1. Crashworthiness

Reduce the number of fatalities and severity of injuries due to ground and water impacts.

2. Fire Safety

Reduce fatalities and injuries and increase survivability due to fires during in-flight and ground operations and due to postcrash circumstances.

- C. Aviation System Monitoring and Modeling - Data collection and analysis is necessary to understand the causes and precursors of accidents and incidents. This activity will be the basis for developing preventative and survivability measures and for support of government and industry risk management programs. This activity will develop a significantly improved operational capability for monitoring and evaluating safety-related information and other data obtained from both airborne and ground-based sources at the local, national, and international levels. In addition to addressing the causes and precursors of accidents and incidents, the data will also be used to identify potential safety problems associated with changes or proposed changes to the NAS. Collection and analysis of aircraft operational data in the NAS and from other sources related to the safety of operations will be the primary focus of this activity. This data and the analyses will be exchanged and shared among all participants.

IV. AUTHORITY

- A. NASA - This MOU is entered into on behalf of NASA under the authority of 42 U.S.C. 2473(c), Section 203(c) of the National Aeronautics and Space Act of 1958, as amended.
- B. DOT/FAA - This MOU is entered into on behalf of the FAA under the authority of 49 U.S.C. 106(l) (6) and (m).

V. SCOPE OF ACTIVITIES AND MANAGEMENT

- A. This MOU includes all FAA research, engineering, and development activities related to aircraft and aviation system safety and all NASA activities related to safety research and technology, including the NASA Aviation Safety Program (AvSP) and related activities within NASA's base research and technology programs.
- B. Policy direction shall be provided through the FAA/NASA Executive Committee, pursuant to Agreement Between FAA and NASA, signed October 9, 1998, entitled: "A Partnership To Achieve Goals in Aviation and Future Space Transportation." The Associate Administrator for Research and Acquisitions at the FAA and the Associate Administrator for Aero-Space Technology at NASA, or their appointees, shall preside over all policy deliberations.
- C. The FAA/NASA Joint Working Group (JWG) for Aviation Safety Research is responsible for implementing and monitoring this MOU. Two cochairpersons will chair the JWG, one appointed by each agency. Where interagency agreement cannot

be achieved by the JWG or where actions require approval of higher authority, the JWG cochairpersons will forward their recommendations to the FAA/NASA Executive Committee.

- D. MOA's will be required between FAA and NASA when performing or collaborating in cooperative research activities, setting out the resources to be committed, transferred, or used by each agency (funding transfers require additional procurement documentation). The MOA's shall be developed by the appropriate FAA and NASA project managers for that given research activity. Each MOA will describe the task assignments, including objectives, plans, schedules, products, foreseen benefits, and funding over the period of performance.
- E. The Director, Office of Aviation Research, AAR-1 at the FAA, and the Director, Programs Division, Office of Aero-Space Technology at NASA, are responsible for managing all MOA's under this MOU, and their offices shall be included in the approval process for all such MOA's.

VI. PRODUCTS, MILESTONES, AND REPORTS

Program objectives, schedules, products and reports will be developed as outlined in the Joint FAA-NASA Aviation Safety Research Plan. Detailed objectives, schedules, products, and reports will be developed for each MOA under this MOU.

VII. ANTI-DEFICIENCY ACT

All activities under or pursuant to this MOU are subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. §1341. This MOU is not a funding document, and does not represent the obligation or transfer of funds.

VIII. CANCELLATIONS

The Severe Weather Research MOU, executed on August 14, 1990, and the Airworthiness Research MOU, executed on August 14, 1990, are hereby cancelled. All MOA's currently existing under the Severe Weather Research and Airworthiness Research MOU's will be transferred and conducted pursuant to this MOU.

IX. MODIFICATION OR TERMINATION

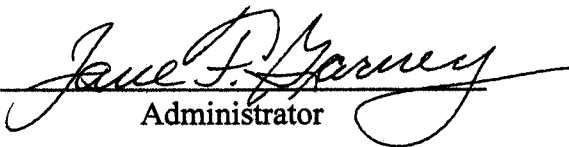
This MOU may be modified or terminated at any time upon the mutual written consent of both parties.

X. PERIOD OF PERFORMANCE

This MOU shall take effect upon the date of the last signature of the approving officials appearing below and shall remain in effect unless terminated upon written request of either party. All subsequent MOA's under this MOU will be limited to an initial period of performance not to exceed 5 years, although they may be renewed for additional periods of performance, not to exceed 5 years for any renewal period. These MOAs may also include Economy Act orders, pursuant to 31 U.S.C. §1535, should one agency order goods or services from the other in fulfillment of a project's objectives.

AGREED:

**DEPARTMENT OF TRANSPORTATION/
FEDERAL AVIATION ADMINISTRATION**

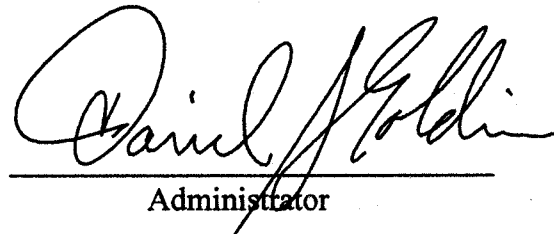


Administrator

JUL 2 1999

Date

**NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION**



Administrator

JUN 8 1999

Date